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Suggestions For Improvement:
The Alaska Smoke Jumper's Main Deployment System

After careful inspection of your rather unique parachute system, I have concluded that it is well designed, manufactured, and maintained. However, as inventor of the three-ring release system, and designer of many successful parachute container systems, I believe I can make a few suggestions, which will make your gear even safer.

1. Lower the main container about 3", and add two lower connection tabs to keep it there, even if the "belly band" comes loose. This will prevent any possibility of the container "riding up" and blocking the 3-ring release.
2. Replace all "plastic hardware" in load bearing applications with metal hardware.
3. Leave about 2" of slack in the bridle just below the main container closing pin, outside the container. Without this slack, it could take over 80 lbs. of force to pull the pin and open the container.
4. Use only two turns of the rubber band when stowing the last (thick) bight of Kevlar drogue bridle. This will keep the "unstow" force under twenty pounds where it should be.
5. Find a method of holding down the Kevlar drogue bridle just above the large ring of the three-ring system, so that the rings are held in alignment under slight tension before drogue deployment. The rings should be aligned in the direction of the normal first application of force upon drogue deployment. This will prevent the drogue bridle from wrapping around the three-ring system, possibly forming a knot and preventing release.
6. Always pack the main risers so that they keep the three-ring system properly aligned and under slight tension through main container opening. This will prevent the rings from folding back on themselves and "locking up". A lock-up means either a very hard pull to breakaway, or a broken locking loop and accidental release of that riser.
7. Add at least ¼" to the three-ring release locking loop length on both the drogue release and main canopy release system. This will prevent hard pulls, as well as damage to the yellow release cables. Refer to the "Three Ring Riser Construction Manual" I gave you for proper construction dimensions and other tips.
8. The type II-a sheathing used for three-ring locking loops should be sewn to the riser stacked on top of itself, instead of side-by-side as is currently done. This makes for easier assembly, as well as a smoother release.

While the above actions will improve the reliability of your system, I do not believe that any of these "problems" contributed to your recent accident. After everything you told me, I believe that the drogue release locking loops on both harnesses in question got wet on the previous jump, and then froze, preventing drogue release on the jump in question. It is important to note that cold alone was not the problem. The three-ring system will work properly even at 40 below zero, if it is dry. The problem comes when the locking loop is wet, and then exposed to freezing temperatures. **Therefore, the most important recommendation I can make is not to jump in freezing conditions with wet equipment.**

Sincerely,

Bill Booth

Bill Booth, President